



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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PAT QUINN, GOVERNOR

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217/782-2113

LIFETIME OPERATING PERMIT -- NESHP and NSPS SOURCE -- REVISED

PERMITTEE

U.S. Department of Energy
Attn: Dr. Joanna M. Livengood
Wilson and Kirk Roads, P.O. Box 2000
Batavia, Illinois 60510

Application No.: 79070012

I.D. No.: 043807AAI

Applicant's Designation:

Date Received: November 19, 2009

Subject: Fermilab Site

Date Issued: November 25, 2009

Expiration Date: See Condition 1.

Location: Wilson and Kirk Roads, Batavia, Kane County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Magnetic Debonding Oven with Afterburner
Two 15 mmBtu/hour Natural Gas-Fired Boilers
One 11.55 mmBtu/hour Natural Gas-Fired Boiler
Gasoline Dispensing Facility with One 12,000 Gallon Gasoline Storage Tank
Equipped with Permanent Submerged Loading, with Stage 1 and Stage 2
Vapor Balance System
Radionuclide Emission Stacks
Open Top Vapor Degreaser
One Emergency Standby Diesel Fuel Fired Engine - Generator with Nominal
Capacity of 2,220 Horsepower
Collider Detector at Fermilab (CDF) Gas Circulating System and Main Injector
Particle Production (MIPP) Experiment Gas System.
One Cavity Processing Facility which includes:
One Buffered Chemical Polishing (BCP) process
One Electropolishing (EP) process

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This permit shall expire 180 days after the Illinois EPA sends a written request for the renewal of this permit.
- b. This permit shall terminate if it is withdrawn or is superseded by a revised permit.
- 2a. The 11.55 mmBtu/hour boiler is subject to the New Source Performance Standard (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR Part 60 Subparts A and Dc. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The Permittee shall perform the applicable monitoring, reporting and recordkeeping as required by 40 CFR 60.47c and 60.48c.

- c. At all times the Permittee shall, to the extent practicable, maintain and operate the boilers, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.
- 3a. This source appears to be subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories: Gasoline Dispensing Facilities, 40 CFR Part 63 Subparts A and CCCCCC. The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The source shall comply with the applicable requirements of 40 CFR Part 63 Subparts A and CCCCCC.
- 4a. This Department of Energy facility (DOE) is subject to a National Emission Standard for Hazardous Air Pollutants (NESHAP) for radionuclide emissions, 40 CFR 61, Subparts A and H.
- b. Pursuant to the National Emission Standard for Hazardous Air Pollutants, emissions of radionuclides shall not exceed those amounts that cause a dose equivalent to 10 mrem/year to any member of the public. Doses due to radon-220, radon-222, and their respective decay products are excluded from these limits.
- c. At all times, the Permittee shall also, to the extent practicable, maintain and operate the plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.
- 5. Pursuant to 35 Ill. Adm. Code 216.121, no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 10 mmBtu/hour to exceed 200 ppm, corrected to 50 percent excess air.
- 6a. The Permittee shall demonstrate compliance with NESHAP using the procedures specified by 40 CFR 61.93.
- b. The Permittee shall fulfill applicable notification, record keeping and reporting requirements for the NESHAP, 40 CFR 61.09, 61.10(c) and 61.94(c).
- 7. Emissions of volatile organic material (VOM) and operation of the open top vapor degreaser shall not exceed the following limits:

Solvent Usage		VOM Content	VOM Emissions	
(Tons/Month)	(Tons/Year)	(% Weight)	(Tons/Month)	(Tons/Year)
0.8	8.0	100	0.8	8.0

These limits define the potential of VOM emissions and are based on maximum material usage and VOM content. Compliance with annual limits shall be determined from a running total of 12 months of data.

Natural Gas Usage: 10.0 mmscf/month, 99.25 mmscf/year

<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
	<u>Factor</u> <u>(Lb/mmscf)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxides (NO _x)	32*	0.16	1.59
Carbon Monoxide (CO)	84	0.417	4.17
Sulfur Dioxide (SO ₂)	0.6	0.003	0.03
Particulate Matter (PM)	7.6	0.038	0.38
Volatile Organic Materials (VOM)	5.5	0.027	0.27

These limits are based on the 99.25 mmscf of natural gas usage, 8760 hours of operation, the emission factors for natural gas combustion as listed in Section 1.4 of the AP42 (Fifth edition, Supplement D, July 1998) Table 1.4-1, and information in the application. Compliance with annual limits shall be determined from a running total of 12 months of data.

* The emission factor for flue gas recirculation is used.
This boiler is constructed with flue gas recirculation.

- c. Natural gas shall be the only fuel used in the three boilers. Use of any other fuel other than natural gas requires a permit change.
11. This permit is issued based on negligible emissions of VOM from the gasoline dispensing storage tank. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
 12. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 8 lbs/hour of organic material into the atmosphere from any emission source, except as provided by the following exception: If no odor nuisance exists this limitation shall apply only to photochemically reactive material.
 13. Emissions and operation of the CDF Gas System and the Main Injector Particle Production Gas System shall not exceed the following limits:

<u>VOM Usage</u>		<u>VOM Emissions</u>	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
0.27	3.21	0.27	3.21
 14. This permit is issued based on the potential to emit (PTE) for Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act being less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP).
 15. In the event that the operation of this emission unit results in an odor nuisance, the Permittee shall take appropriate and necessary

- A. Racking parts to allow complete drainage;
 - B. Moving parts in and out of the degreaser at less than 3.3 m/minute (11 ft/minute);
 - C. Holding the parts in the vapor zone until condensation ceases;
 - D. Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and
 - E. Allowing parts to dry within the degreaser until visually dry.
- iii. Porous or absorbent materials, such as cloth, leather, wood or rope, are not degreased;
 - iv. Less than half of the degreaser's open top area is occupied with a workload;
 - v. The degreaser is not loaded to the point where the vapor level would drop more than 10 cm (4 in) when the workload is removed from the vapor zone;
 - vi. Spraying is done below the vapor level only;
 - vii. Solvent leaks are repaired immediately;
 - viii. Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
 - ix. Water is not visually detectable in solvent exiting from the water separator; and
 - x. Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).
- b. Equipment Requirements: No person shall operate an open top vapor degreaser unless:
 - i. The degreaser is equipped with a cover designed to open and close easily without disturbing the vapor zone;
 - ii. The degreaser is equipped with the following switches:

- c. Operate the vapor balance system and delivery vessel unloading points in a manner that prevents:
 - i. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and
 - ii. Avoidable leaks of liquid during the filling of storage tanks. [35 IAC 218.583(d)(4)]
 - d. Repair, replace, or modify any worn out or malfunctioning component or element of design. [35 IAC 218.583(c)(3)]
 - e. Within 15 business days after discovery of the leak, repair and retest a vapor balance system which exceeds the above limits in Condition 20(c). [35 IAC 218.583(d)(5)]
 - f. Provide instructions to the personnel operating the gasoline dispensing facility describing necessary maintenance operations and procedures for prompt notification of the Permittee in case of any malfunction of a vapor balance system. [35 IAC 218.583(c)(2)]
21. The Permittee shall operate a Stage II vapor collection and control system which is properly installed and maintained as provided below, whenever vehicles are fueled with gasoline, pursuant to 35 IAC 218.586(c):
- a. The vapor collection and control system has been CARB certified.
 - b. The vapor collection and control system is maintained in accordance with the manufacturer's specifications and the certification.
 - c. No elements or components of a vapor collection and control system are modified, removed, replaced, or otherwise rendered inoperative in a manner which prevents the system from performing in accordance with its certification and design specifications.
 - d. The vapor collection and control system has no defective, malfunctioning, or missing components.
 - e. Personnel operating the gasoline dispensing facility are trained and instructed in the proper operation and maintenance of a vapor collection and control system.
 - f. Instructions are posted in a conspicuous and visible place within the motor fuel dispensing area and describe the proper method of dispensing motor vehicle fuel with the use of the vapor collection and control system.

- c. Hours of operation of the debonding oven (hours/month and hours/year);
 - d. Material usage for the CDF System and the MIPP System (lbs/month and tons/year); and
 - e. The hours of operation of the EP process and the BCP process (hours/month and hours/year);
 - f. Quantity and percent concentration of nitric acid used (gallons/month and gallons/year);
 - g. The amount of gasoline dispensed (gallons/month and gallons/year); and
 - h. PM, NO_x, CO, SO₂, VOM, and HAP emissions with supporting calculations (tons/month and tons/year).
- 26a. The Permittee shall maintain records of the following items to address compliance with the limits in Condition 16:
- i. Records of the sulfur content of the fuel oil for each shipment of fuel oil received, percent by weight.
 - ii. Hours of operation for the engine-generator (hours/month and hours/year).
 - iii. Monthly and annual records of fuel consumption by the engine-generator (gallons/month and gallons/year).
 - iv. Monthly and aggregate annual emissions of NO_x, CO, SO₂, VOC and PM in tons/month and tons/year of the engine-generator, with supporting calculations.
- b. The Permittee shall keep a maintenance and repair log for the engine-generator, listing significant activities performed with date.
- c. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
27. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS
FOR
LIFETIME OPERATING PERMITS

July 1, 1998

The Illinois Environmental Protection Act [415 ILCS 5/39 (formerly Illinois Revised Statutes, Chapter 111-1/2, Section 1039)] grants the Illinois Environmental Protection Agency authority to impose conditions on permits which it issues.

1. The issuance of this Permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.
2. The Illinois EPA has issued this Permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.
3.
 - a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted, until the appropriate permit is obtained from the Illinois EPA.
 - b. The Permittee shall obtain a new or revised permit under Section 39.5 of the Act, if the source no longer meets the applicability criteria of 35 Ill. Adm. Code 201.169 because of changes in emissions units or control equipment.
 - c. The Permittee shall obtain a revised permit prior to any of the following changes at the source:
 - i. An increase in emissions above the amount the emission unit or the source is permitted to emit; or
 - ii. A modification; or
 - iii. A change in operations that will result in the source's noncompliance with a condition in the existing permit; or
 - iv. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.
4.
 - a. This Permit only covers emission units and control equipment while physically present at the indicated source location. Unless the Permit specifically provides for equipment relocation, this Permit is void for an item of equipment on the day it is removed from the permitted location, or if all equipment is removed.
 - b. The Permittee shall notify the Illinois EPA in writing to withdraw the Permit if all operations the source have been permanently discontinued.

DIRECTORY
ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR

For assistance in preparing a permit application contact the Permit Section.

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
1021 N. Grand Ave E.
P.O.Box 19506
Springfield, Illinois 62794-9506

or a regional office of the Field Operations Section. The regional offices and their areas of responsibility are shown on the map. The addresses and telephone numbers of the regional offices are as follows:

Illinois EPA
Region 1
Bureau of air, FOS
9511 West Harrison
Des Plaines, Illinois 60016
847/294-4000

Illinois EPA
Region 2
5415 North University
Peoria, Illinois 61614
309/693-5463

Illinois EPA
Region 3
2009 Mall Street
Collinsville, Illinois 62234
618/346-5120

